



US006139433A

United States Patent [19][11] **Patent Number:** **6,139,433****Miyamoto et al.**[45] **Date of Patent:** ***Oct. 31, 2000**

[54] **VIDEO GAME SYSTEM AND METHOD WITH ENHANCED THREE-DIMENSIONAL CHARACTER AND BACKGROUND CONTROL DUE TO ENVIRONMENTAL CONDITIONS**

FOREIGN PATENT DOCUMENTS

90881/91 11/1990 Australia .

(List continued on next page.)

OTHER PUBLICATIONS

[75] Inventors: **Shigeru Miyamoto; Yasunari Nishida; Takumi Kawagoe; Satoshi Nishiumi**, all of Kyoto, Japan

"Analog Joystick Interface Emulation Using a Digital Counter", IBM technical Disclosure Bulletin, vol. 37, No. 08, Avg. 1994, pp. 73-74.

(List continued on next page.)

[73] Assignee: **Nintendo Co., Ltd.**, Kyoto, Japan

[*] Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Primary Examiner—Michael O'Neill
Attorney, Agent, or Firm—Nixon & Vanderbye P.C.

[57] ABSTRACT

A video game system includes a game cartridge which is pluggably attached to a main console having a main processor, a 3D graphics generating coprocessor, expandable main memory and player controllers. A multifunctional peripheral processing subsystem external to the game microprocessor and coprocessor is described which executes commands for handling player controller input/output to thereby lessen the processing burden on the graphics processing subsystem. The video game methodology involves game level organization features, camera perspective or point of view control features, and a wide array of animation and character control features. The system changes the "camera" angle (i.e., the displayed point of view in the three-dimensional world) automatically based upon various conditions and in response to actuation of a plurality of distinct controller keys/buttons/switches, e.g., four "C" buttons in the exemplary embodiment. The control keys allow the user at any time to move in for a close up or pull back for a wide view or pan the camera to the right and left to change the apparent camera angle. Such user initiated camera manipulation permits a player to better judge jumps or determine more precisely where an object is located in relation to the player controlled character. The video game system and methodology features a unique player controller, which permits control over a character's exploration of the three-dimensional world to an unprecedented extent. A player controlled character may be controlled in a multitude of different ways utilizing the combination of the joystick and/or cross-switch and/or control keys and a wide range of animation effects are generated.

[21] Appl. No.: **08/870,100**

[22] Filed: **Jun. 5, 1997**

Related U.S. Application Data

- [63] Continuation-in-part of application No. 08/562,288, Nov. 22, 1995, and a continuation-in-part of application No. 08/719,019, Sep. 24, 1996, and a continuation-in-part of application No. PCT/JP96/02931, Oct. 9, 1996, and a continuation-in-part of application No. 08/765,474, Apr. 29, 1997, and a continuation-in-part of application No. PCT/JP96/02726, Sep. 20, 1996, and a continuation of application No. 08/857,882, May 16, 1997
- [60] Provisional application No. 60/043,756, Apr. 9, 1997.

- [51] **Int. Cl.⁷** **A63F 9/22**
- [52] **U.S. Cl.** **463/32; 463/31; 463/7; 345/474**
- [58] **Field of Search** **463/31, 30, 32, 463/34, 7; 345/473, 474, 475, 121, 123, 125, 126**

[56] References Cited**U.S. PATENT DOCUMENTS**

- D. 316,879 5/1991 Shulman et al. .
- D. 317,946 7/1991 Tse .

(List continued on next page.)

25 Claims, 57 Drawing Sheets